

**Notice of Allowability**

Application No.

10/768,403

Examiner

Nancy Bitar

Applicant(s)

MURPHY ET AL.

Art Unit

2624

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 09/06/2007.
2. ☒ The allowed claim(s) is/are 250,252-261 and 263.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date See Continuation Sheet
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

Continuation of Attachment(s) 3. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date:  
04/22/05, 01/28/05, 11/02/04, 07/30/04, 07/27/04.

### DETAILED ACTION

The following is an examiner statement for reasons for allowance: After reviewing the remarks made by Applicant to the non-final office action the Examiner finds the remarks to be persuasive. The most pertinent prior art is Kiyuna et al ( US 7,136,540) and Sheehan et al ( US 5,435,310). Kiyuna discloses a technology for extracting a target object region from picture data that include a region extraction target image, based on attributes of pixels of a picture; particularly, the invention relates to a picture region extraction method and device that extract a region such as a specific organ, tumor, cell nucleus, and glandular cavity in a picture from picture data taken with an MRI apparatus or a CT scanner, or a cross-sectional view of a biological tissue observed with a biological microscope. Sheehan teaches the use of three-dimensional model of the heart to determine cardiac parameters by imaging and three-dimensional modeling portions of the heart, particularly, the left entricular endocardial and epicardial surfaces, using imaging data. Preferably, a transesophageal ultrasound probe is inserted into an esophagus of a patient to provide multiple plane imaging data at end systole and end diastole during a cardiac cycle. The image planes are then traced along the boundaries of the epicardial and endocardial surfaces to produce sets of data points, which are further processed and expanded through interpolation. These data points are used for modeling the endocardial and epicardial surface at the end systole and end diastole extremes of the cardiac cycle. A center surface is constructed between an inner and outer surface of the modeled surfaces of the left ventricle and an average template of tiled sections is mapped onto this center surface. The mapped

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tilted sections are then projected onto the inner and outer surfaces, defining triangular prisms. By determining the volume of the triangular prisms and an average area for their ends, the range of movement, which is equal to the volume divided by the average area, is determined. Similarly, for changes in wall thickness between the endocardial and epicardial surfaces at end diastole and end systole, the thickening of the cardiac wall is determined. Neither Kiyuna nor Sheehan discloses " automatically segmenting at least a portion of left ventricle wall epicardial boundaries of a least two of the provided images of heart tissue into a selected number of epicardial left ventricle wall points; and automatically using endocardial left ventricle wall points and epicardial left ventricle wall points to create a model of at least a portion of the left ventricle wall over one or more periods of time" thus helping identifying and evaluating the positioning of the valve apparatus, the attached tissue and their combined performance and allowing the physician to stimulate the treatment on a portion of those elements and see the effect the treatment has on the other elements and the heart as a whole prior to performing the surgery. The Examiner finds no reason or motivation to combine the above references in an obviousness rejection thus placing the application in condition for allowance.

Claims 250, 252-261, and 263 are allowed .

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nancy Bitar whose telephone number is 571-270-1041.

The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

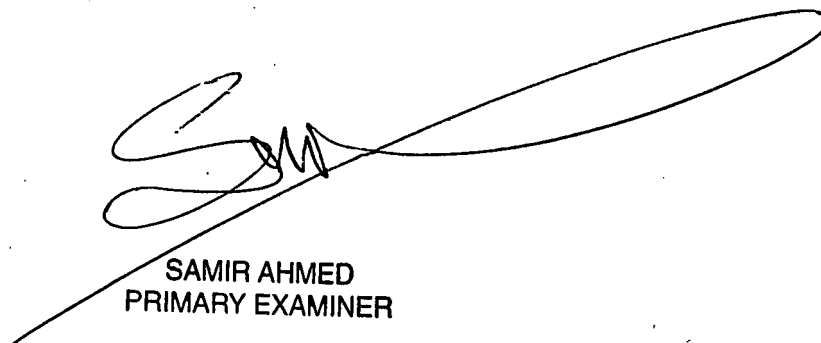
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nancy Bitar

09/09/2007



SAMIR AHMED  
PRIMARY EXAMINER